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EXAMINER

BURGESS, JOSEPH D

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/788,635	<b>Applicant(s)</b> KUO ET AL.	
	<b>Examiner</b> JOSEPH BURGESS	<b>Art Unit</b> 3626	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 July 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9, 13-20 and 22-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13-20 and 22-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/10/2009</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of Claims***

1. This action is in reply to an amendment filed on 07/02/2009. Claims 1-7, 9, 13, 14, 16-18, 20, 23, and 25 have been amended. Claims 10-12 and 21 have been cancelled. Claims 26-30 have been added. Therefore, claims 1-9, 13-20, and 22-30 are currently pending and have been examined.

### ***Response to Amendments***

2. Applicant's amendments to claims 1-25, including cancellation of claims 10-12 and 21, are sufficient to overcome the 35 USC § 112, first paragraph rejections set forth in the previous office action. Applicant's amendments to claims 4 and 16-25, including cancellation of claim 21, are sufficient to overcome the 35 USC § 112, second paragraph rejections set forth in the previous office action.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:  
  
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 26-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
5. Claim 26 recites "associating a predefined risk parameter to each detected one or more patterns based on the clustering operation". Similarly, claim 28 recites "updating the associated

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predefined risk parameter based on each iteratively detected one or more patterns. Similarly, claim 29 recites "to associate a predefined risk parameter to each detected one or more patterns based on the clustering operation". The specification does not specifically mention predefined risk parameters. All claims dependent on these claims are rejected for the same reasons.

**6.** The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**7.** Claims 14 and 26-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**8.** Claim 14 recites "identifying one of the plurality of appliances as an unsatisfactory appliance if the actual effect of one of the plurality of the appliances is more than a threshold different from the intended effect of the plurality of appliances". It is unclear what specific threshold measurements are needed to determine if the difference is unsatisfactory.

**9.** Claim 26 recites a "computer implemented method" in the preamble. However, the body of the claim is silent as to where the computer implementation takes place. Therefore, it is unclear how the computer implementation is used to provide for the essential steps of the method. Also, this claim recites "a clustering operation has been or is performed on the accessed information". It is unclear when this clustering operation is performed. Additionally, claim 26 recites "associating a predefined risk parameter to each detected one or more patterns based on the clustering operation" and subsequently recites "generating an orthodontic related treatment information for the current malocclusion condition of the patient". Similar language is used in claim 29. It is unclear if the treatment information is generated as a result of the risk parameters or if there is

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any connection between these two steps. All claims dependent on these claims are rejected for the same reasons.

***Claim Rejections - 35 USC § 101***

**10.** 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**11.** Claims 1-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**12.** Claims 1-28 are directed to a method. Based on Supreme Court precedent and recent Federal Circuit decisions, the Office's guidance to an examiner is that a § 101 process must (1) be tied to a particular machine or apparatus or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. *In re Bilski et al*, 88 USPQ 2d 1385 CAFC (2008); *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

**13.** To qualify as a § 101 statutory process, the claim should recite the particular machine or apparatus to which it is tied, for example by identifying the machine or apparatus that accomplishes the method steps, or positively reciting the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

**14.** There are two corollaries to the machine-or-transformation test. First, a mere field-of-use limitation is generally insufficient to render an otherwise ineligible method claim patent-eligible. This means the machine or transformation must impose meaningful limits on the method claim's scope to pass the test. Second, insignificant extra-solution activity will not transform an

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unpatentable principle into a patentable process. This means reciting a specific machine or a particular transformation of a specific article in an insignificant step, such as data gathering or outputting, is not sufficient to pass the test.

15. Here, applicant's method steps fail the first prong of the new test because they are not tied to a particular machine. For example, claim 1 recites "storing in a database data or information related to at least one of..." The database is directed to insignificant extra solution activity and is insufficient to render the otherwise ineligible process claim as statutory. Alternatively, the "interrogating", "correlating", and "associating" steps as claimed do not involve a particular machine.

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1, 6, 17-20, 22-24, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sachdeva (US 6,540,512 B1) in view of Jordan, et al. (US 2003/0163291 A1).

18. **Claim 1:**

Sachdeva, as shown, discloses the following limitations:

- *storing in a database data or information related to at least one of patient treatment history, an orthodontic therapy, orthodontic information, diagnostics, or orthodontic treatment outcome* (see at least column 5, lines 46-67, i.e. system has a database with multiple patient's orthodontic parameters);

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- *interrogating said database to generate an output data stream, correlating a patient malocclusion with an orthodontic treatment parameter (see at least column 5, line 46 – column 7, line 20),*
- *associating said output data stream in said database with said malocclusion and storing the associated output data stream in said database (see at least column 5, lines 28-67).*

Sachdeva does not explicitly disclose the following limitation, but Jordan as shown does:

- *interrogating said database including iteratively determining one or more statistically relevant patterns of different orthodontic related treatment outcome based comparable malocclusions and the respective orthodontic therapy (see at least paragraphs 0058-0059 and 0082);*

The combination of the orthodontic database and treatment methods of Sachdeva with the orthodontic data mining techniques of Jordan would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except iteratively determining orthodontic treatment. Jordan teaches those details.

**19. Claim 6:**

The combination of Sachdeva/Jordan discloses the limitations as shown in the rejections above. Furthermore, Sachdeva discloses the limitation of *the output data stream is related to one or more clinical constraints* (see at least column 5, lines 46-67 and column 6, line 58 – column 7, line 43, i.e. multiple patient's orthodontic parameters are retrieved from database to help form a treatment plan which includes information on tooth movements or clinical constraints).

**20. Claim 17:**

The combination of Sachdeva/Jordan fails to explicitly disclose *capturing one or more characteristics data tags associated with a patient case to label captured data*. However, **applicant admits** that it is old and well known in the art to apply tags to data and capture data based on those tags. Therefore, it would have been obvious to one of ordinary skill in the art to

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combine the orthodontic database, data mining, and treatment methods of Sachdeva/Jordan with the ability to tag data and capture data based on those tags. The reason to combine the ability to capture tagged data to the mined orthodontic data would be to determine which patient cases are relevant to the search being executed. This combination provides a predictable result because it is well known to capture tagged data after it is labeled.

**21. Claim 18:**

The combination of Sachdeva/Jordan fails to explicitly disclose *aggregating data of a set of treatments based on the data tags and rating at least one of a plurality of the set of treatments based on the aggregated data*. However, **applicant admits** that it is old and well known in the art to aggregate data and rate that aggregated data. Therefore, it would have been obvious to one of ordinary skill in the art to combine the orthodontic database, data mining, and treatment methods of Sachdeva/Jordan with the ability to collect tagged data and rate that data based on groupings. The reason to combine the ability to aggregate and rate data to the mined orthodontic data would be to determine which treatment is best for the patient. This combination provides a predictable result because it is well known to rate data that is collected.

**22. Claim 19:**

The combination of Sachdeva/Jordan fails to explicitly disclose *comparing performance of a plurality of sets of treatments*. However, **applicant admits** that it is old and well known in the art to compare performance of different treatments. Therefore, it would have been obvious to one of ordinary skill in the art to combine the orthodontic database, data mining, and treatment methods of Sachdeva/Jordan with the ability to compare performance of different treatments. The reason to combine the ability to compare performance of different treatments to the mined orthodontic data would be to determine which treatment is best for the patient. This combination provides a predictable result because it is well known to compare performance of different treatments.

**23. Claim 20:**

The combination of Sachdeva/Jordan fails to explicitly disclose *applying a predetermined treatment model to calculate risk of treatment complication*. However, **applicant admits** that it is old and well known in the art to apply a model to calculate risk. Therefore, it would have been obvious to one of ordinary skill in the art to combine the orthodontic database, data mining, and treatment methods of Sachdeva/Jordan with a model to calculate the risk of those methods for the purpose of determining the most likely complications arising from orthodontic treatment. The reason to combine the risk model to the mined orthodontic data would be to determine the riskiest data points, which in this instance would be the most difficult cases. This combination provides a predictable result because it is well known that risk models determine risk.

**24. Claim 22:**

The combination of Sachdeva/Jordan fails to explicitly disclose *identifying a treatment case for special treatment parameters including clinical constraint*. However, **applicant admits** that it is old and well known in the art to recognize cases that require special attention. Therefore, it would have been obvious to one of ordinary skill in the art to combine the orthodontic database, data mining, and treatment methods of Sachdeva/Jordan with the ability to identify a case for special treatment. The reason to combine the discovery of special treatment cases with the mined orthodontic data would be to determine which cases need extra attention. This combination provides a predictable result because it is well known to identify special cases.

**25. Claim 23:**

The combination of Sachdeva/Jordan fails to explicitly disclose *clusterizing a plurality of clinical practitioners based on one or more practice habits*. However, **applicant admits** that it is old and well known in the art to group doctors by what they practice. Therefore, it would have been obvious to one of ordinary skill in the art to combine the orthodontic database, data mining, and

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treatment methods of Sachdeva/Jordan with the ability to identify practitioners by their practicing inclinations. The reason to combine the grouping of clinical practitioners with the mined orthodontic data would be to determine which practitioners have cases that can be helped by certain appliances. This combination provides a predictable result because it is well known to group practitioners by the way they practice.

**26. Claim 24:**

The combination of Sachdeva/Jordan fails to explicitly disclose *treatment parameters are adapted to preferences specific to each cluster*. However, **applicant admits** that it is old and well known in the art to adapt a patient's treatment according to the practice style of a group of doctors. Therefore, it would have been obvious to one of ordinary skill in the art to combine the orthodontic database, data mining, and treatment methods of Sachdeva/Jordan with the ability to adjust treatment parameters. The reason to combine the adjusting of treatment factors with the mined orthodontic data would be to use treatment options that are known to work with certain practicing styles of orthodontists. This combination provides a predictable result because it is well known to adjust a patient's treatment according to how a doctor practices.

**27. Claim 26:**

Sachdeva, as shown, discloses the following limitations:

- *accessing a database including stored information related to one or more of a patient treatment history, an orthodontic therapy, orthodontic information, diagnostics, or orthodontic treatment outcome, wherein a clustering operation has been or is performed on the accessed information from the database to detect one or more patterns in the accessed information, the one or more patterns associated with one or more treatment outcome or a predetermined level of treatment complication (see at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15);*

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- *associating a predefined risk parameter to each detected one or more patterns based on the clustering operation* (see at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15);
- *generating an orthodontic related treatment information for the current malocclusion condition of the patient* (see at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15);
- *outputting the generated orthodontic related treatment information to a display device* (see at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15).

Sachdeva does not explicitly disclose the following limitation, but Jordan as shown does:

- *receiving one or more parameters associated with a current malocclusion condition of a patient* (see at least paragraphs 0080-0081);

The combination of the orthodontic database and treatment methods of Sachdeva with the orthodontic data mining techniques of Jordan would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except receiving current patient malocclusion information. Jordan teaches those details.

**28. Claim 27:**

The combination of Sachdeva/Jordan discloses the limitations as shown in the rejections above. Furthermore, Sachdeva discloses the limitation of *the clustering operation is iteratively performed, each iteration of the clustering operation updating the detected one or more patterns* (see at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15).

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**29. Claim 28:**

The combination of Sachdeva/Jordan discloses the limitations as shown in the rejections above. Furthermore, Sachdeva discloses the limitation of *performing the clustering operation includes iteratively detecting the one or more patterns and updating the associated predefined risk parameter based on each iteratively detected one or more patterns* (see at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15).

**30. Claim 29:**

Sachdeva, as shown, discloses the following limitations:

- *one or more processors* (see at least column 5, lines 3-45);
- *a memory for storing instructions* (see at least column 5, lines 3-45) *which, when executed by the one or more processors, causes the one or more processors to access a database including stored information related to one or more of a patient treatment history, an orthodontic therapy, orthodontic information, diagnostics, or orthodontic treatment outcome based at least in part on a received current malocclusion condition of a patient, to perform a clustering operation on the accessed information from the database to detect one or more patterns in the accessed information, the one or more patterns associated with one or more treatment outcome or a predetermined level of treatment complication, to associate a predefined risk parameter to each detected one or more patterns based on the clustering operation, and to generate orthodontic related treatment information for the current malocclusion condition of the patient* (see at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15).

Sachdeva does not explicitly disclose the following limitation, but Jordan as shown does:

- *based at least in part on a received current malocclusion condition of a patient* (see at least paragraphs 0080-0081).

The combination of the orthodontic database and treatment methods of Sachdeva with the

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orthodontic data mining techniques of Jordan would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except receiving current patient malocclusion information. Jordan teaches those details.

**31. Claim 30:**

The combination of Sachdeva/Jordan discloses the limitations as shown in the rejections above. Furthermore, Sachdeva discloses the limitation of *a display device operatively coupled to the one or more processors, wherein the memory for storing instructions, which, when executed by the one or more processors, causes the one or more processors to display the generated orthodontic related treatment information on the display device* (see at least figure 2).

- 32.** Claims 2-5, 13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sachdeva (US 6,540,512 B1) in view of Jordan, et al. (US 2003/0163291 A1) in further view of Chishti, et al. (US 5,975,893 A).

**33. Claim 2:**

The combination of Sachdeva/Jordan discloses the limitations as shown in the rejections above. The combination of Sachdeva/Jordan does not explicitly disclose the limitation of *generating one or more data sets associated with one or more parameters of a plurality of appliances having geometries selected to progressively reposition the teeth, wherein the appliances comprise polymeric shells having cavities and wherein the cavities of successive shells have different geometries shaped to receive and resiliently reposition teeth from one arrangement to a successive arrangement*. However, in at least column 2, line 62 - column 3, line 31, Chishti '893 discloses such a method. The combination of the orthodontic database and treatment methods of Sachdeva with the progressive polymeric shells of Chishti '893 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known

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methods to yield predictable results. Sachdeva teaches every feature of the claims except progressive polymeric shells. Chishti '893 teaches those details.

**34. Claim 3:**

The combination of Sachdeva/Jordan/Chishti '893 discloses the limitations as shown in the rejections above. Furthermore, Sachdeva discloses the limitation of *the plurality of appliances includes a sequence of configurations of braces, the braces including brackets and archwires* (see at least column 7, line 21 – column 8, line 44).

**35. Claim 4:**

The combination of Sachdeva/Jordan/Chishti '893 discloses the limitations as shown in the rejections above. Furthermore, Chishti '893 discloses the limitation of *the plurality of appliances includes a sequence of polymeric shells manufactured by fitting polymeric sheets over positive models corresponding to the teeth of the patient* (see at least column 2, line 62 - column 3, line 31). The combination of the orthodontic database and treatment methods of Sachdeva with the progressive polymeric shells of Chishti '893 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except progressive polymeric shells. Chishti '893 teaches those details.

**36. Claim 5:**

The combination of Sachdeva/Jordan/Chishti '893 discloses the limitations as shown in the rejections above. Furthermore, Chishti '893 discloses the limitation of *the plurality of appliances includes a sequence of polymeric shells manufactured using digital models* (see at least column 6, line 50 – column 7, line 29). The combination of the orthodontic database and treatment methods of Sachdeva with the progressive polymeric shells of Chishti '893 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined

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according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except progressive polymeric shells. Chishti '893 teaches those details.

**37. Claim 13:**

The combination of Sachdeva/Jordan/Chishti '893 discloses the limitations as shown in the rejections above. Furthermore, Chishti '893 discloses the limitation of *one of the plurality of appliances is a positioner for finishing and maintaining teeth positions* (see at least column 8, lines 41-54). The combination of the orthodontic database and treatment methods of Sachdeva with the progressive polymeric shells of Chishti '893 would be obvious under *KSR v. Teleflex* (82 USPQ 2d 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except progressive polymeric shells. Chishti '893 teaches those details.

**38. Claim 15:**

The combination of Sachdeva/Jordan/Chishti '893 discloses the limitations as shown in the rejections above. Furthermore, Chishti '893 discloses the limitation of *capturing at least an initial tooth position, a target tooth position; and one or more intermediate tooth positions* (see at least column 6, lines 12-37, i.e. digital data sets of an initial tooth arrangement, final tooth arrangement, and several intermediate stages of tooth arrangements in between are provided). The combination of the orthodontic database and treatment methods of Sachdeva with the progressive tooth movement of Chishti '893 would be obvious under *KSR v. Teleflex* (82 USPQ 2d 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except progressive polymeric shells. Chishti '893 teaches those details.

**39. Claim 16:**

The combination of Sachdeva/Jordan/Chishti '893 discloses the limitations as shown in the

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rejections above. Furthermore, Chishti '893 discloses the limitation of *analyzing one of a plurality of intermediate tooth positions with a target position* (see at least column 13, lines 27-44, i.e. software analyzes intermediate positions linearly to get to target position). The combination of the orthodontic database and treatment methods of Sachdeva with the progressive tooth movement of Chishti '893 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except progressive polymeric shells. Chishti '893 teaches those details.

**40.** Claims 7-9, 14, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sachdeva (US 6,540,512 B1) in view of Jordan, et al. (US 2003/0163291 A1) in further view of Chishti, et al. (US 6,471,511 B1).

**41. Claim 7:**

The combination of Sachdeva/Jordan discloses the limitations as shown in the rejections above. The combination of Sachdeva/Jordan does not explicitly disclose the limitation of *the one or more clinical constraints includes one of more of a maximum rate of displacement of a tooth, a maximum force on a tooth, a desired end position of a tooth, or one or more combinations thereof*. However, in at least column 2, lines 30-33, Chishti '511 discloses clinical constraints include these parameters. The combination of the orthodontic database and treatment methods of Sachdeva with the clinical constraints of Chishti '511 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except specific clinical constraints. Chishti '511 teaches those details.

**42. Claim 8:**

The combination of Sachdeva/Jordan/Chishti '511 discloses the limitations as shown in the

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rejections above. Furthermore, Chishti '511 discloses the limitation of *the maximum force is a linear force or a torsional force* (see at least column 2, lines 33-34). The combination of the orthodontic database and treatment methods of Sachdeva with the clinical constraints of Chishti '511 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except specific clinical constraints. Chishti '511 teaches those details.

**43. Claim 9:**

The combination of Sachdeva/Jordan/Chishti '511 discloses the limitations as shown in the rejections above. Furthermore, Chishti '511 discloses the limitation of *the maximum rate of displacement is a linear or an angular rate of displacement* (see at least column 2, lines 34-35). The combination of the orthodontic database and treatment methods of Sachdeva with the clinical constraints of Chishti '511 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except specific clinical constraints. Chishti '511 teaches those details.

**44. Claim 14:**

The combination of Sachdeva/Jordan/Chishti '511 discloses the limitations as shown in the rejections above. Furthermore, Chishti '511 as shown discloses the following limitations:

- *comparing an actual effect of the plurality of appliances with an intended effect of the plurality of appliances* (see at least column 2, lines 15-17);
- *identifying one of the plurality of appliances as an unsatisfactory appliance if the actual effect of one of the plurality of the appliances is more than a threshold different from the intended effect of the plurality of appliances* (see at least column 2, lines 17-21).

The combination of the orthodontic database and treatment methods of Sachdeva with the comparison and identification of intended effects of orthodontic appliances of Chishti '511 would

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be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except comparison and identification of intended effects of orthodontic appliances. Chishti '511 teaches those details.

**45. Claim 25:**

The combination of Sachdeva/Jordan discloses the limitations as shown in the rejections above. The combination of Sachdeva/Jordan does not explicitly disclose the limitation of *applying a probabilistic model to determine one or more discrepancies between a target and an actual tooth position at one or more stages in the treatment*. However, in at least column 2, lines 1-57, Chishti '511 discloses digital finite element models are applied to orthodontic appliances and patient's teeth to predict the effect aligners will have on targeted and actual teeth positions and adjustments to treatment plan are made accordingly. The combination of the orthodontic database and treatment methods of Sachdeva with the orthodontic modeling of Chishti '511 would be obvious under *KSR v. Teleflex* (82 USPQ 2nd 1385) because prior art elements are being combined according to known methods to yield predictable results. Sachdeva teaches every feature of the claims except orthodontic modeling. Chishti '511 teaches those details.

***Response to Arguments***

- 46.** Applicant's arguments regarding the 35 USC § 112, second paragraph rejection to claim 14 in the previous office action has been fully considered but is not persuasive. As outlined in the 35 USC § 112, second paragraph rejection above, the claim is still unclear as to what specific threshold measurements are needed to determine if the difference from the intended effect of the appliances is unsatisfactory.
- 47.** Applicant's arguments regarding the 35 USC § 101 rejections in the previous office action has been fully considered but is not persuasive. As outlined in the 35 USC § 101 rejection above, the

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database is directed to insignificant extra solution activity and is insufficient to render the otherwise ineligible process claim as statutory. It is unclear what particular machine is carrying out the essential steps of the method.

**48.** Applicant's arguments the 35 USC § 103 rejections have been fully considered but they are not persuasive. However, in an effort to advance prosecution, Examiner has provided a response to applicant's arguments. Applicant argues:

- i. Sachdeva/Jordan does not disclose or otherwise render obvious the claimed subject matter in claim 1.
- ii. Sachdeva/Jordan does not disclose or otherwise render obvious the claimed subject matter in claims 26 and 29.

**49.** With regards to applicant's argument that Sachdeva/Jordan does not disclose or otherwise render obvious the claimed subject matter in claim 1, Examiner respectfully disagrees. Sachdeva, in at least column 5, line 28 – column 7, line 20, discloses storing historical patient orthodontic information in database, using the stored historical information and a current patient's information to develop a orthodontic treatment plan for the current patient, and storing that treatment plan in the system's database. Additionally, Jordan, in at least paragraphs 0058-0059 and 0081, discloses that the system performs the process of selecting an orthodontic treatment plan iteratively. Therefore, the combination of these references renders claim 1 obvious.

**50.** With regards to applicant's argument that Sachdeva/Jordan does not disclose or otherwise render obvious the claimed subject matter in claim 26 and 29, Examiner respectfully disagrees. Sachdeva, in at least figures 10-16, column 5, lines 46-67, column 7, line 44 – column 8, line 56, and column 12, line 33 – column 17, line 15, discloses storing historical patient orthodontic information in a database, using the stored historical information and a current patient's information to detect deviations or relationships between the historical data and the current

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patient's data, use this information to develop a orthodontic treatment plan for the current patient, and output that treatment plan in the system's display device. Additionally, Jordan, in at least paragraphs 0080-0081, discloses receiving the malocclusion information for the current patient. Therefore, the combination of these references renders claims 26 and 29 obvious.

#### **51. Official Notice Not Traversed**

In the amendment filed 07/02/2009, applicant did not address Examiner's taking of Official Notice in the previous office action. Therefore applicant's lack of response is deemed inadequate to rebut the Examiner's taking of Official Notice and the statements are hereinafter deemed admitted prior art as shown in this office action. The Examiner would like to note the requirements for traversing official notice from MPEP § 2144.03:

To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See 37 CFR 1.111(b). See also *Chevenard*, 139 F.2d at 713, 60 USPQ at 241 ("[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention."). A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate. If applicant adequately traverses the examiner's assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained. See 37 CFR 1.104(c)(2). See also *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 ("[T]he Board [or examiner] must point to some concrete evidence in the record in support of these findings" to satisfy the substantial evidence test). If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2). If applicant does not traverse the examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next Office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate. If the traverse was inadequate, the examiner should include an explanation as to why it was inadequate. (MPEP § 2144.03(C))

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To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See 37 CFR 1.111 (b).

If applicant does not traverse the examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate [emphasis added].

Because Applicant has not specifically pointed out any errors in the Examiner's action, the officially noticed facts in the 03/05/2009 office action are deemed admitted prior art.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **JOSEPH BURGESS** whose telephone number is **(571)270-5547**. The Examiner can normally be reached on Monday-Friday, 9:00am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **CHRISTOPHER GILLIGAN** can be reached at **(571)272-6770**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair> . Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **(866)217-9197** (toll-free).

Any response to this action should be mailed to:

**Commissioner of Patents and Trademarks  
Washington, D.C. 20231**

or faxed to **571-273-8300**. Hand delivered responses should be brought to the **United States Patent and Trademark Office Customer Service Window:**

**Randolph Building  
401 Dulany Street  
Alexandria, VA 22314.**

JOSEPH BURGESS

11/4/2009

Examiner

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/C. Luke Gilligan/

Supervisory Patent Examiner, Art Unit 3626